Remarks/Arguments

Amendments to the Claims

Claims 4 and 7 are amended to provide for consistent formatting of the steps, that is, additions of dots after the letters designating the particular step.

Claim 1 is amendment to include a description of the carpet substrate and carpet backing. Support for these amendments is found on page 5, line 24 to page 6, line 1 and page 12, line 19-21 of the specification. Claim 1 is further amended to indicate the melt-mixing and agglomeration is done at a temperature of 150°C to 220°C such that the fragments are softened but not totally melted. Support for this amendment is found on page 14 line 21-25 and page 15, line 1 of the specification.

Claims Pending in the Application

Claims 1-16 and 19 remain pending in the present application.

Claims 21-31 and 35 are canceled.

Claims 17, 18, 20, 33 and 34 are withdrawn from consideration based on an earlier restriction requirement.

This response will address objections/rejections based on the claims remaining in the application.

Claim Objections

Claims 1, 2, 4, 7, 9, 10, 12, 13, and 15 are objected to because of the informality the steps should be uniform with respect to dots or no dots. Claims 4 and 7 are amended to include the dots, consistent with the remainder of the claims.

Rejection under 35 USC §112

Claims 1-16 and 19 are rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the reaction is based on confusion of “melt-mixing the shredded scrap fragments and forming agglomerates from the molten carpet scrap fragments” as it is not clear how agglomerates could be formed from a molten material.

Claims 1 is amended to indicate the temperature of the melt-mixing and agglomeration are done at specified temperature and where the material is softened and not melted. As melt-mixing is defined in the specification and claims as a softening without complete melting, applicant assets the present claims meet the requirements of 35 USC §112, second paragraph.

The rejection to claim 21 under 35 USC §112 as not providing a proper antecedent bases for Step (G) and the phrase "either and either", is moot based on the cancellation of claim 21.

Rejection under 35 USC §103

Claims 1-16 and 19 stand rejected under 35 USC 103(a) as being unpatentable over Mirasol et al (WO98/25984) in view of David et al (US 5,591,802).

Mirasol et al is cited as disclosing a continuous process for preparing filled polymer carpet backings comprising incorporating high loading of filler materials such as recycle waste material from carpet manufacturing process, e.g. mixtures of fibrous materials, ground polymer water of particle size less than 2 mm, polyurethane from carpet underlays into a virgin carpet backing formulation. The Office Action states Mirasol et al fail to teach that filler is a ground powder made by the claimed process.

David et al. is cited as teaching that a powder of recycled carpet samples for the use inf a variety of applications can be made by obtaining carpet scrape having a substrate and a backing coating secured to the substrate; melt-blending the shredded carpet scrap fragments in an extruder, processing to form pellets, and further process as granules or powders. The Office Action states David et al do not expressly teach that powder can be produced by grinding pellets, it would be obvious to do so because a powder is conventionally made in the art of grinding larger pieces such as pellets.

The reference as combined to state it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a powder produced by the method of David et al as recycled carpet filler in Mirasol et al because Mirasol et al teach that filler could be a mixture of all carpet components, and powder of David et al contains mixture of all carpet component.

The present invention is directed to recycling carpet scrap in its entirety, including at a minimum a carpet substrate and a carpet backing. In particular the present invention is for the recycling of carpet scrapes which contain components having different having different thermal properties, such as the carpet substrate having properties of a thermoplastic and the carpet backing having properties of a thermoset (polyurethane). As the carpet scrapes contain thermoplastic and thermoset (polyurethane) components, the carpet scraps are heated at a temperature such that the thermoplastic portion of such scrap becomes soft. The softening of thermoplastic component allows the thermoset particles to agglomerate with the thermoplastic component and allow for further processing of the material. This process is significantly different than the prior art where by individual components, thermoset or thermoplastic, need to be processed separate from the other.

The above principle is illustrated by David et al. where the recycling is done on the thermoplastic components of the carpet. In the process of David et al, all the components of the carpet are essentially thermoplastic and the material are melt blended. This is the formation of a flowable, liquid form without substantial degradation. (column 3, lines 17-18). If such conditions are applied to the carpet scrapes of the present invention, such processing conditions would scorch the polyurethane or cause retro-reaction of the polyurethane component. The present invention thus differs from David et al. in the composition of the carpet scrape used in the recycling process and substantial difference in the processing of the scrape.

Considering Mirasol et al, this reference discloses a process for preparing a polyurethane-forming reactive mixture useful for preparing a polyurethane backed article where it includes a) an isocyanate reactive material; b) a polyisocyanate: and c) a filler. As filler, recycled waste material from a carpet manufacturing process is mentioned, (page 6, line 17). The teachings of Mirasol et al state as examples, i) fibrous materials such as lint from a fabric shearing process; ii) polymer waste that is ground to particle sizes less than 2 mm, including rubber; and iii) polyurethane from carpet underlays, (page 6 lines 18-20). The teaching of Mirasol et al coincide with the teachings of David et al. whereby the material from carpet recycled is a material that will have a uniform composition, and not a mixture of materials having different properties.

As can be seen from the discussion above, taking the material of David et al and using as the filler in Mirasol et al would not give the present invention as the recycled scrape of the and processing conditions of David et al. are substantially different than what is claimed in the present invention. The claims are therefore non-obvious in view of Mirasol et al taken together with David et al.

It is believed the current response is fully responsive to the Office Action of May 14, 2007. Reconsideration and allowance of Claims 1-16 and 19 are respectfully requested.

Dated: November 12, 2007

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